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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/261,328 03/03/99 FERENCE T BU9-98202

MM92/0605

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EXAMINER

GRAYBILL, D

ART UNIT

PAPER NUMBER

2814

DATE MAILED:

06/05/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/261,328

Applicant(s)

ERENCE ET AL.

Examiner

David E Graybill

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 1999.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) 7-9, 19, 21-24 and 26-53 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-18, 20 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 10-18, 20 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Akamatsu (5611481).

At column 3, line 60 to column 4, line 27, and column 6, lines 48-55, Akamatsu teaches a semiconductor structure comprising a first substrate 1; a second substrate 6 joined to the first substrate; a plurality of second solder bump contacts 3A between the substrates and a plurality of first solder bumps 4A connected between the substrates for aligning the contacts; a ledge 5 on one of the substrates, wherein the first bumps are arranged in contact with the ledge, such that an upper surface of the contacts and an upper surface of the first bumps are coplanar, one of the substrates is an integrated circuit chip, the contacts comprise a material having a higher melting point than the first bumps, an upper surface of the contacts and an upper surface of the bumps are coplanar, the second bumps have a smaller size than the first bumps, and the contacts are

sufficiently small to permit alignment of individual devices on the chip.

To further clarify the teaching wherein an upper surface of the contacts and an upper surface of the bumps are co-planar, it is noted that the claims are not limited to a particular absolute frame of reference, therefore, all surfaces of the bumps are encompassed by the scope of the term "upper surface." Moreover, it is inherent that any upper surface of the contacts lies in a plane with an upper surface of the bumps; therefore, an upper surface of the contacts and an upper surface of the bumps are co-planar.

To further clarify the teaching that the second bumps have a smaller size than the first bumps, it is noted that the smallest width at the tip of the second bump is smaller than the width at the base of the first bump.

To further clarify the teaching that the contacts are sufficiently small to permit alignment of individual devices on the chip, it is noted that it is inherent that on an integrated circuit chip are individual circuit devices. In addition, the chip is aligned with the other substrate. Therefore, it is inherent that the contacts are sufficiently small to permit alignment of individual devices on the chip. In any case, the statement of intended use, "to permit alignment of individual

devices on the chip" does not result in a structural difference between the claimed product and the product of Akamatsu. Further, because the product of Akamatsu is inherently capable of being used for the intended use the statement of intended use does not patentably distinguish the claimed product from the product of Akamatsu. Similarly, the manner in which a product operates is not germane to the issue of patentability of the apparatus; Ex parte Wikdahl 10 USPQ 2d 1546, 1548 (BPAI 1989); Ex parte McCullough 7 USPQ 2d 1889, 1891 (BPAI 1988); In re Finsterwalder 168 USPQ 530 (CCPA 1971); In re Casey 152 USPQ 235, 238 (CCPA 1967). And, claims directed to product must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

However, Akamatsu does not appear to explicitly teach the particular dimensional limitations of claims 10-15. Notwithstanding, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose these particular dimensions because applicant has not disclosed that the dimensions are for a particular unobvious

purpose, produce an unexpected result, or are otherwise critical, and it appears prima facie that the process would possess utility using other dimensions. Moreover, it has been held that limitations directed to size and configuration are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Applicant's remarks filed 3-20-01 have been fully considered and are addressed infra.

Also, applicant contends that Akamatsu does not teach a plurality of first solder bumps connected between the substrates for aligning the contacts. This contention is respectfully traversed because, as explicitly set forth in the rejection, Akamatsu teaches a plurality of first solder bumps 4A connected between the substrates for aligning the contacts. Indeed, at column 4, lines 64-65, and column 6, lines 48-55, Akamatsu explicitly teaches that the bump is for aligning the contacts.

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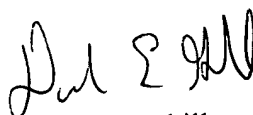
THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to the Customer Service Office, TC 2800, 703/306-3329.

Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (703) 308-2947. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is 703/305-3431.


David E. Graybill
Primary Examiner
Art Unit 2814

D.G.